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09/854,517	05/15/2001	Masahiro Takei	DP-771 US	8231

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EXAMINER	
POLLACK, MELVIN H	

ART UNIT	PAPER NUMBER
2145	

DATE MAILED: 10/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/854,517	TAKEI, MASAHIRO	
	Examiner	Art Unit	
	Melvin H Pollack	2141	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 May 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *15 May 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *5/15/01*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☒ Other: *see attached office action*.

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement filed 15 May 2001 fails to comply with 37 CFR 1.98(a)(3) because it does not include a concise explanation of the relevance, as it is presently understood by the individual designated in 37 CFR 1.56(c) most knowledgeable about the content of the information, of each patent listed that is not in the English language. It has been placed in the application file, but the information referred to therein has not been considered.

Knowledge based expert systems

2. As a preface to the 35 USC 112 rejections, it appears useful to review three examples of knowledge based expert systems, as well as the relevant cases and burdens. In particular, this information is necessary to foreshadow the upcoming enablement and indefiniteness rejections regarding the terms "analyzing performance" and "calculating approximate calculation value" within our expert system.

3. DEFINITION. The claimed invention appears to be a relatively low-level expert system. An "expert system" is defined by Microsoft Computer Dictionary as "An application program that makes decisions or solves problems in a particular field, such as finance or medicine, by using knowledge and analytical rules defined by experts in the field. It uses two components, a knowledge base and an inference engine, to form conclusions... See also artificial intelligence, inference engine, intelligent database, knowledge base."

4. THREE EXAMPLES. The complexity of early expert systems is discussed by Time-Life Artificial Intelligence (copyright 1986) at page 40 "With considerable help and encouragement from Feigenbaum and his colleague Bruce Buchanan, another Stanford research scientist, Shortliffe devised an expert system dubbed MYCIN. Armed with some 500 if-then rules for diagnosing meningitis and blood infections and recommending antibiotic therapies".

5. A second expert system is discussed at page 41, "CADUCEUS-which was named for the traditional winged-staff-and-serpent symbol of physicians-began in the early 1970s. Its goal is to encompass the essential diagnostic knowledge of some 700 diseases. With Jack Meyers serving

as an important source of the system's expertise, it is perhaps unsurprising that CADUCEUS acquired the nickname Jack-in-the-Box.... Systems such as CADUCEUS are severely limited by the size of their knowledge bases."

6. A third expert system is discussed at page 41, "Aldo Cimino... expert in maintaining the complex sterilizers, or "cookers," used for killing bacteria in canned soup... spent about seven months with Michael Smith, a so called knowledge engineer-a computer scientist who tries to reduce complex subjects to the if-then formant that can be processed by an expert system ... more than 150 rules of thumb to aid the operators of Cambell's sterilizers". Note that two experts spent seven months (or 14 man-months, or more than 1 man-year) to generate 150 if-then rules.

7. LEGAL PRECEDENT. For the record, note two useful cases regarding enablement. *White Consolidated Industries, Inc. v. Vega Servo-Control Inc.* (CAFC) 218 USPQ 961, 963 (7/25/83) addresses software enablement and states "The amount of required experimentation, however, must be reasonable" and "in this case that development of a single pass language translator would require from 1-1/2 to 2 manyears of effort, a clearly unreasonable requirement".

8. Also note that *In re Wands* (CA FC) 8 USPQ2d 1400, 1404 (9/30/1998) provides an 8 factor test for determining undue experimentation: "Factors to be considered in determining whether a disclosure would require undue experimentation...includes (1) the quantity of experimentation necessary, (2) the amount of direction or guidance presented, (3) the presence or absence of working examples, (4) the nature of the invention, (5) the state of the prior art, (6) the relative skill of those in the art, (7) the predictability or unpredictability of the art, and (8) the breadth of the claims".

9. MPEP BURDENS. Examiner bears "the initial burden to establish a reasonable basis to question the enablement" according to MPEP 2164.04. The burden then shifts to the Applicant to "present persuasive arguments, supported by suitable proofs where necessary", see MPEP § 2164.05. The standard for the Applicant's arguments is "convincing to one skilled in the art", see MPEP § 2164.05.

10. (**Time-Life Artificial Intelligence** refers to Artificial Intelligence (Understanding Computers), by Time-Life Books, 1986, ISBN 0-8094-5675-3, pages 36-43.)

Claim Rejections - 35 USC § 112

11. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

12. Claims 1-22 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The term "analyzing performance" is not enabling because there is no description of the method or usage of analysis, leading to undue experimentation. The terms "calculating approximate calculation value" and "calculating performance value" are not enabling because there is inadequate description regarding what constitutes an "approximate value" as opposed to a "performance value", and because there is inadequate description of why a user would be motivated to search for one value over another. As such, the system requires undue experimentation. See the legal analysis section of "Knowledge based expert systems" above.

13. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

14. Claims 1-22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

15. The term "approximate calculation value" in claims 1-22 are a relative term which renders the claim indefinite. The term "performance value" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably appraised of the scope of the invention. The applicant is required to explain and clarify the definition and usage of approximate calculation value. Specifically, it must be clarified whether approximate value is simulated while

performance value is measured, whether the user may determine the difference and by what mechanism, and the particular formulae or determination method for both. See the "expert system" section above.

16. Claims 1-22 are also rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The omitted elements are: the method of analyzing performance of said packets. The precise definition of this term is unclear, and there are a wide variety of analysis techniques and methods for a wide variety of purposes, leading to undue experimentation to determine the precise method described by this term. See the "expert system" section above.

17. Claims 1-22 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The omitted elements are: the usage and purpose of the described method and system. The applicant is required to clarify whether the system is used to monitor and manage an existing system, whether it is used to simulate either an existing or planned system or both, or some combination thereof.

Claim Rejections - 35 USC § 103

18. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

19. Claims 1-4, 10-15, 21, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liu et al. (6,134,514) in view of Zager et al. (6,393,386) and *Capacity Planning and Performance Monitoring* by Daniel Menascé et al.

20. For claim 1, Liu teaches a method (abstract) for analyzing performance (col. 1, lines 5-10) of a large-scale network supervisory system (col. 1, lines 10-30), where configuration of a supervisory-system network (col. 1, lines 30-50) which is a performance analytical object (col. 4, lines 45-50) has a supervisory equipment (col. 4, lines 35-40), and a plurality of supervisory object devices (col. 4, lines 40-45) connected to and supervised by said supervisory equipment (Fig. 1), said method comprising the steps of:

a. Enabling a user to input to an input device (col. 5, lines 55-60) device performance information regarding said supervisory equipment and said supervisory object devices (col. 12, line 60 – col. 13, line 25), and data traffic patterns associated with said supervisory equipment and said supervisory object devices (col. 4, line 65 – col. 5, line 10);

b. Storing in a model storage section via said input device network configuration information (Fig. 1, #27) in which a function of said network configuration is combined as a sub-model (col. 7, lines 10-55), and said device performance information (col. 7, line 55 – col. 8, line 25);

c. Storing in a parameter storage section by means of said input device said device performance information and said data traffic patterns (Fig. 7);

d. Activating a performance evaluation section by said input device to acquire information regarding said data traffic patterns from said parameter storage section (col. 5, lines 10-50);

e. Preparing a generation schedule of packets generated by said supervisory equipment or said supervisory object devices (col. 6, line 35 – col. 7, line 10); and

f. Calculating approximate calculation value in a case where said sub-model to be analyzed, which has been acquired from said model storage section, is a sub-model to be subjected to approximate calculation (col. 2, lines 5-13), calculating performance value in a case where said sub-model is a sub-model on which no approximate calculation is performed (col. 2, lines 13-20), and outputting to an evaluation result output device performance analytical results (col. 5, lines 50-60).

21. Liu does not expressly disclose inputting certain information types. Zager teaches a method (abstract) of managing large-scale computer networks (col. 1, line 1 – col. 4, line 10) in which users input network configuration information on said supervisory-system network (col. 6, lines 10-50). At the time the invention was made, one of ordinary skill in the art would have used Zager's input system to keep track of device changes and to handle node partitioning (Liu, col. 7, lines 10-55).

22. Liu does not expressly disclose outputting results by combining said approximate calculation value and said performance value. Menascé teaches a method (see preface) of modeling systems (Chapters 3 and 4) using obtained information (Chapter 9) in which approximate and performance values are combined (Chapter 10) into one model (Fig. 10.15) for calibration purposes. At the time the invention was made, one of ordinary skill in the art would

have used the combination process in Liu in order to combat the shortcomings of either method (Liu, col. 2, lines 20-50) and to allow the user to determine which models are easily solved, and which aren't (Menascé, Ch. 10.7 and 10.8).

23. For claim 2, Liu teaches that in said step of storing in said parameter storage section, said section stores performance values and setup values (Fig. 1, #27), said performance values including a rate of processing performed between said supervisory equipment and said supervisory object devices (col. 11, line 10 – col. 12, line 60), and a rate of a communication buffer and a network (col. 9, lines 1-35), and said setup values with respect to a traffic including a frequency of administration messages and data amount exchanged between said supervisory equipment and said supervisory object devices (col. 9, lines 35-55).

24. For claim 3, Liu teaches that said sub-model is a supervisory object device if said data traffic patterns are assumed to be performance evaluation (col. 11, lines 40-50).

25. For claim 4, Liu does not expressly disclose that said approximate calculation is a performance-degradation calculation for bus arbitration executed in the Ethernet, but does teach the use of Ethernet interfaces (Fig. 1, #58-66). Zhang teaches this limitation (col. 8, lines 20-40).

26. For claim 10, Liu teaches that said evaluation result output device inputs said performance analytical results obtained by said performance evaluation section (Fig. 2, 9), and suggestions for improvements to be outputted by a model configuration advisory section in a case where there is any portion which requires improvements (col. 1, lines 10-30), in accordance with said performance analytical results, and displays a location where a bottle neck exists and said suggestions for improvements (col. 5, lines 40-60).

27. For claim 11, Liu teaches that said model configuration advisory section checks whether or not a model is valid on the basis of said performance analytical results obtained by said performance evaluation section, and outputs if there is any sub-model regarded as a bottle neck, a location where the bottle neck exists and suggestions for improvements (col. 11, line 10 – col. 12, line 15).

28. Claims 12-15 are drawn to a hardware system that implements the method drawn in claims 1-4, respectively. It is well known in the art that a system implementation is functionally equivalent to the underlying method. Therefore, since claims 1-4 are rejected, claims 12-15 are also rejected for the reasons above. A teaching that shows the functional equivalence will be included upon request.

29. Claims 21 and 22 are drawn to a hardware system that implements the method drawn in claims 10 and 11, respectively. It is well known in the art that a system implementation is functionally equivalent to the underlying method. Therefore, since claims 10 and 11 are rejected, claims 21 and 22 are also rejected for the reasons above. A teaching that shows the functional equivalence will be included upon request.

30. Claims 5-7 and 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liu, Zhang, and Menascé as applied to claims 1 and 12 above, and further in view of Waclawsky et al. (5,197,127).

31. For claim 5, Liu and Zagner do not expressly disclose methods of performing queuing simulations. Waclawsky teaches a method (abstract) of optimizing large networks (col. 1, line 1 – col. 2, line 35) in which the steps executed in said performance evaluation section include:

a. Performing in a queuing analytical section queuing simulation (Fig. 12) by inputting connection information on the queuing (Table 1), and performance information regarding packet arrival intervals and a service rate (col. 5, lines 55-65); and

b. Outputting from a queuing analytical section a packet processing time, and a utilization factor and a queue length of each queue (Fig. 10-12).

32. At the time the invention was made, one of ordinary skill in the art would have added Waclawsky to the above system in order to evaluate window protocol behavior among other behaviors (col. 1, lines 45-50).

33. Menascé teaches that he steps executed in said performance evaluation section include:

c. Holding in an approximate calculation section a functional algorithm and a conversion table used for performing approximation on performance value including a delay time of a model, and outputting an approximate value of the performance value to be obtained for the input (Chapter 2); and

d. Calculating in a performance evaluation controller in accordance with information from said approximate calculation section, said model storage section, and said parameter storage section, by utilizing said approximate calculation section for portion of a model to be simulated by the approximate calculation, and by using said queuing analytical section for other portions, performance analytical results by combining analytical values from associated two kinds of modules (Chapter 6, esp. Chapter 6.4).

34. At the time the invention was made, one of ordinary skill in the art would have added Menascé's various mathematical teachings to Liu in order to determine how to implement the

various models (mentioned above) and to solve the problems inherent in both models (Liu, col. 2, lines 5-55).

35. For claim 6, Liu teaches that said controller administers the time associated with a generation schedule of packets as a virtual time in the simulation (Fig. 9, #105).

36. For claim 7, Liu does not expressly disclose that said performance evaluation controller executes a statistical processing including calculations for obtaining a mean value, a maximum value, a minimum value, and a standard deviation of the results obtained by processing the packets. Zager teaches these items (col. 32, lines 24-39). At the time the invention was made, one of ordinary skill in the art would have added Zager's calculation methods to allow site-specific formulae for user-friendly reading (col. 32, lines 30-35).

37. Claims 16-18 are drawn to a hardware system that implements the method drawn in claims 5-7, respectively. It is well known in the art that a system implementation is functionally equivalent to the underlying method. Therefore, since claims 5-7 are rejected, claims 16-18 are also rejected for the reasons above. A teaching that shows the functional equivalence will be included upon request.

38. Claims 8, 9, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liu, Zhang, and Menascé as applied to claims 1 and 12 above, and further in view of Tamaki et al. (6,226,561).

39. For claim 8, Liu does not expressly disclose that said evaluation result output device displays the amount of money required for a system construction, by inputting said performance analytical results obtained in said performance evaluation section, and a price of a supervisory

system to be evaluated that has been calculated by a device cost calculation section from said network configuration information stored in said model storage section and price information associated with each component of the network configuration. Zager teaches the process of determining system costs, but does not expressly disclose the process for doing so (col. 1, lines 20-40; col. 3, lines 20-50). Tamaki teaches a method (abstract) of system simulation for production planning (col. 1, line 1 – col. 6, line 35) that teaches the system limitations above (Fig. 1). At the time the invention was made, one of ordinary skill in the art would have used a Tamaki system to fulfill Zager's cost determination plan above, and to determine cost-cutting measures in system development (col. 2, lines 20-30).

40. For claim 9, Zhang teaches that said device cost calculation section holds configuration information on various network devices including various computers, hubs, and routers constituting the supervisory network (as shown above), but does not expressly disclose that said device cost calculation section holds price information regarding said components, and calculates the amount of money required for constructing the supervisory system from the number of devices and its performance, said devices being used in said sub-model held in said model storage section. Tamaki teaches the above limitations (col. 9, lines 25-col. 11, line 10). At the time the invention was made, one of ordinary skill in the art would have combined the two inventions to fulfill Zager's cost determination plan above, and to determine cost-cutting measures in system development (col. 2, lines 20-30).

41. Claims 19 and 20 are drawn to a hardware system that implements the method drawn in claims 8 and 9, respectively. It is well known in the art that a system implementation is functionally equivalent to the underlying method. Therefore, since claims 8 and 9 are rejected,

claims 19 and 20 are also rejected for the reasons above. A teaching that shows the functional equivalence will be included upon request.

Conclusion

42. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melvin H Pollack whose telephone number is (703) 305-4641. The examiner can normally be reached on 8:30-5:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rupal Dharia can be reached on (703) 305-4003. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MHP
23 September 2004

RUPAL DHARIA
SUPERVISORY PATENT EXAMINER